SOLVING PROBLEM OF NEW YORK'S FIRE ALARM SYSTEM

Robert Adamson, Fire Commissioner.

Fire Com. Adamson Has Actively Taken Up Movement Started in 1904 to Give City Modern Signal Service

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THE movement for an improved fire alarm system for the city of New York which the present administration, through its Fire Commissioner, Robert Adamson, has actively taken in hand, was started in December, 1904, when the insurance companies, through their organization, urged that a committee be appointed to investigate the situation and report.

In February, 1905, the New York Board of Fire Underwriters, under the direction of Messrs. Carty and Miller, signalling experts, made a six months study of the problem and rendered a report condemning the present system as beyond repair. This investigation was limited to conditions on the island of Manhattan. The meat of this report was that the only remedy would be to install a new system, separate and distinct from the present one, and with the new system established the old one should be abandoned.

The following year the city itself took hold, and in March, 1907, with the aid of the same engineers, preliminary plans and specifications were prepared for a modern fire alarm system for the island of Manhattan.

Following this, however, there was no thorough attempt to engage in the work of reconstruction until about four years later. Small appropriations of corporate stock were set aside for this much needed improvement as early as 1903, but these funds were largely diverted to continually pressing needs incidental to keeping the old system in operation, and in the ten years which followed the money set aside for installing a new fire alarm system in all boroughs has aggregated the substantial sum of $1,609,000. That considerable progress toward reconstruction has not been accomplished is a matter reflecting little credit, being born of no definite plan of procedure.

The preliminary plans that were prepared for Manhattan required the building of the new system before the abandonment of the old. This course should have been followed, but unfortunately it was not, and the new contracts that have been entered into aggregate too small an amount to make for economic handling; in consequence they constitute patch work at high rate of cost.

Through the establishment by the present administration of a definite policy with regard to the question of "subway" construction, based on a logical opinion of the Corporation Counsel, much misunderstanding and delay will hereafter be avoided.

The agreement entered into by the city with the Empire City Subway Company in 1891 makes it mandatory upon that company to provide the city with such ducts as may be needed for the fire alarm wires in all streets and avenues where subways exist, or where there may be a demand for subways.

Thus the city will be able to install the modern fire alarm system without constructing subways, which offers an advantage in the element of time as well as in cost. The saving thus made will not be confined to the Borough of Manhattan alone, but will extend in like manner to The Bronx, Brooklyn, Queens and throughout the built up portions of Richmond, through the fact that it is proposed to pursue the same general plan or policy in all boroughs.

In taking up this problem, my first inclination was to find out accurately the disposition made of outstanding appropriations and the extent of all new work that had been undertaken, which I found to consist of the following:

A new central station building for each of the three larger boroughs, Manhattan, Brooklyn and The Bronx; underground service cables for connection to 138 street boxes in Manhattan; similar underground service installation connecting 199 street boxes in Brooklyn; an important underground feeder line reaching to southwest Brooklyn; bridge cable connecting Brooklyn with Manhattan; underground service cables for connection to 119 street boxes in The Bronx; a similar underground installation connecting eight street boxes in Queens; a supply of 2,000 alarm post bases; a supply of 300 cast iron manhole frames, and concentrating subways leading to the new Manhattan Central Office building and the similar building in The Bronx respectively.

The aggregate of these contracts amounts to about one-third of the total appropriations made thus far, all of which were found to be in an unfinished state with the exception of four of the smaller items, representing a total of about 5 per cent. The unencumbered balances were about equal to the aggregate of the contracts placed, leaving a remainder of about one-third of the total appropriations diverted to other uses, principally that of maintaining the old system.

In 1865 the fire alarm plant consisted of twelve Bell towers or lookout stations located at points of advantage, such as the cupola of the City Hall, Washington Market, Essex Market, Jefferson Market, Thirty-third street, Fifty-first street, Eighty-fifth street and what is now known as Mount Morris Park. This latter tower, it is interesting to note, is still in existence.

The mode of operation was to watch from these towers for smoke or other indication of fire (this was done by the use of a spy glass) and by means of the Morse telegraph to signal over connecting wires directly to the central office. The signal was then communicated to the department by striking the bells at the twelve bell towers.

The central office at the City Hall was the terminus of four lines of wire connecting the Post Office, Essex Market, Union Market, Macdougal, Jefferson and Fifty-first street towers. In each of these stations was placed a main circuit magnet and bell and a circuit breaking key. On these bells were sounded the signals indicating the districts in which the fire was located, with the numerical designation of the station giving the alarm.

The city was divided in eight districts, the first two being that part of the city above a line drawn through Twenty-second street from the North to the East River; these district signals were struck on the fire bells by the bell ringers on duty in the towers and were the only guide the firemen had in finding the locality of a fire.

This primitive system was soon found inadequate and in 1870 a complete new installation was made at a cost of $450,000 and including about 578 street alarm stations. After the installation of this new system the records of the department show that few difficulties were experienced for a period of ten years. In fact, many decided improvements in its working were effected. This installation is the basis of the present day fire alarm telegraph plant in the Borough of Manhattan.

Through sheer good fortune New York city has passed through three sensational moments when it would seem that only the protection of a higher power has saved it from great disaster. The storms of the winter just past called for a patrol of one thousand men and a period of disorder of the circuits for about thirty days. The amount of labor and material expended in the restoration of the old and decayed system, except for momentary needs, constitutes an outlay for which there is no return.

"Overhead" wires are the most costly to maintain as they are subject to injury by every storm that occurs. New work of this character can hardly be completed before defective conditions arise through interference from other overhead wiring systems.

"Underground" systems are less costly to maintain, and when properly installed their life is several times that of overhead circuits carefully installed.

Manifestly the central office must be surrounded by every possible safeguard, as its security is imminent to the success of the entire fire extinguishing forces.

It was strongly emphasized in the preliminary plans that the central office of the fire alarm telegraph system should be afforded the maximum degree of protection against hazards of any nature, and in order that it should occupy a place which would form an economic and safe centre for the cable system covering the area to be protected it was recommended that the central office building for Manhattan should be located on Transverse road No. 1, running through the southern section of Central Park. This is a sunken road concealed from view in the park connecting Sixty-fifth street on the west side of the park with Sixty-sixth street on the east side. The exact location was not defined and the final disposition of the matter by the city was to locate this building in Central Park, but on Transverse road No. 2 instead of No. 1, this decision having been reached as the result of recommendations by the Department of Parks. The fact that the building is in the park is an unquestioned advantage, but unfortunately its exact location is surrounded by hazards which will necessitate additional constructive work to insure safety. In planning such a building the aim must be to make it absolutely fireproof and in so far as possible immune from all hazards such as earthquakes, windstorms, explosions or floods, and it is obvious that such hazardous conditions as the presence of a large body of water, such as now exists in the lower reservoir, approximately 150 feet north of the site selected for the Manhattan central office, is a hazard, and the presence of a twenty inch and forty-eight inch water main now resting in Transverse road immediately in front of the fire alarm building also constitutes a very serious hazard. This is equally true of the gas main which lies in that same street.

In planning the locations for the street boxes the general rule which is now being followed as indicated on the present plans is that in following any street in any direction a box will be found at every other corner. In some instances exceptions are necessary to this rule. The tendency in these cases, however, is to increase rather than diminish the frequency at which the boxes occur. The location of the street boxes must necessarily be governed very largely by the nature of the property as affecting the fire hazard and I believe the opinion of the chief of the department and of the various chiefs as to the specific needs in each locality will furnish the practical arguments from which the best decision may be reached regarding the location of street alarm boxes in most instances.

The central office equipment in the case of the three boroughs in which new buildings have been erected is yet to be designed, but in general these installations shall be of such nature as to operate properly and efficiently in all respects over the circuits they will control and in connection with the fire alarm box and gong station apparatus which will form a part of the new system when installed.

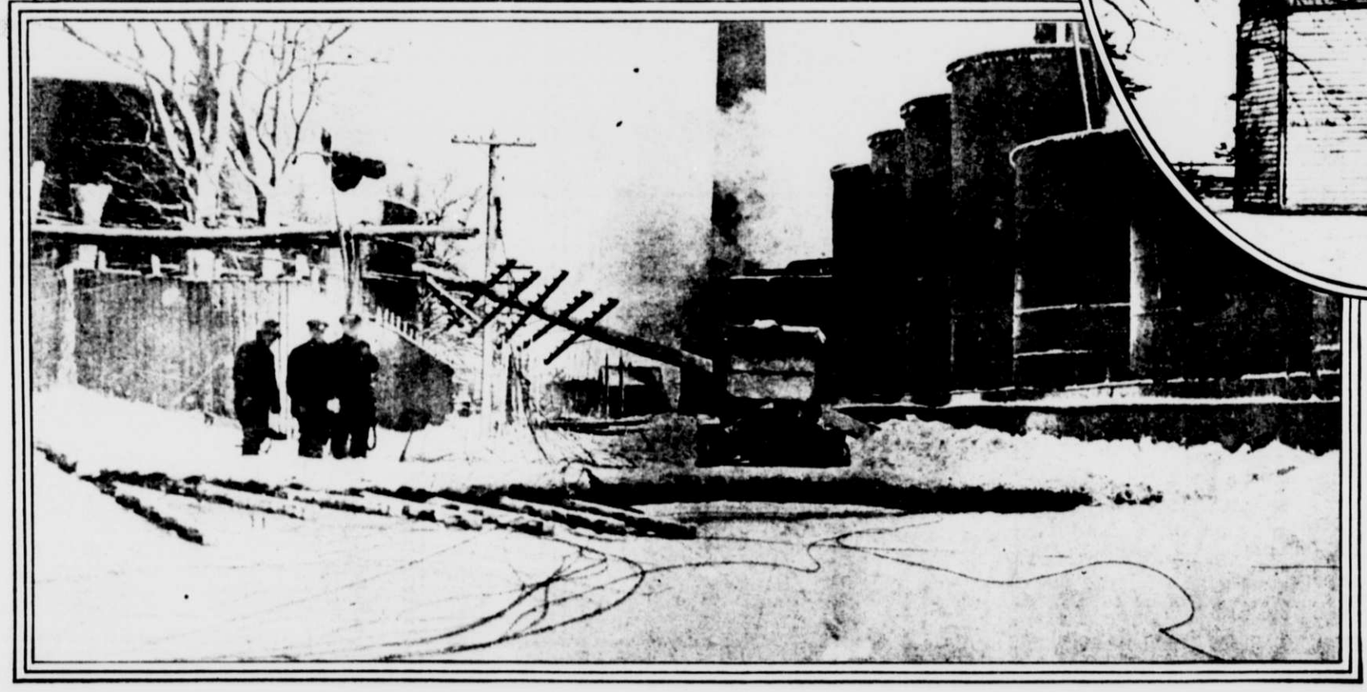
The new installation will be so planned as to enable it to operate in strict accordance with the present routine of the present fire fighting companies and officers of the Fire Department and it is the intention of the present administration to so plan the new system as to allow for sufficient flexibility as to its mode of operation so as to be readily adaptable to any changes in the routine of the fire fighting forces that may in future be considered necessary or advisable by the proper Fire Department authorities. These conditions were largely defined in the preliminary plans prepared by Messrs. Carty & Miller and it is the intention of the present administration to observe us closely, as practical conditions may permit the principles of engineering that have thus already been laid down in the preliminary plans for a modern system on the Island of Manhattan, carrying the same drastic measures into the design of the complete system for all boroughs to such an extent as would apply to the downtown or more congested portions of all boroughs where property values, congestion and risk of life and property are great.

In past years as a source of relief in the matter of dangers due to continued use of overhead circuit, the city has availed itself of the opportunity offered to attach its wires and cables to the elevated railroad structure both in Manhattan and in Brooklyn, and while this method served its purpose to a large degree, it was at the best a makeshift not long to be continued. It was regarded at the time as the best and cheapest method of providing a support for the cables and at the outset the cost of maintenance was small due to their being less liable to mechanical damage and the greater ease with which the cause of trouble could be found and removed as compared with the underground system. This, however, was during the period when the elevated train service was operated by steam engines and the third rail carrying electric current of high potential was not then present.

The dangers from the power current and the excessive deterioration which has taken place in the cables thus installed has caused this installation to be regarded as one of the most unreliable elements in the fire alarm system at the present time.

It is unquestionably due the citizens of the outlying boroughs that their localities should be provided with better means of communication with the Fire Department in the event of fire and not be compelled to resort to the telephone with all its appending delays. The fire alarm boxes should be arranged in numerical order and a modern type of lamppost containing the fire alarm box and equipped with a red globe should be adopted as a standard, not alone for reasons of uniformity but to make the symbol of the fire alarm street box more significant and better known to the citizens through its characteristic appearance.

One of the last of the fire bell towers.



Miles of fire wires were blown down during storm of last March.

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NOVEL EFFECTS IN CALENDARS OBTAINED BY USE OF OLD PRINTS AND RARE PAPERS